CLAIMS

1. A heat-treated active carbon for use in the treatment of exhaust gas which has been obtained by heat-treating a starting active carbon in a non-oxidizing atmosphere.

2. A heat-treated active carbon for use in the treatment of exhaust gas as claimed in claim 1 wherein the starting active carbon is a starting active carbon fiber.

3. A heat-treated active carbon fiber for use in desulfurization which has been obtained by heat-treating a starting active carbon fiber at a temperature of 600 to 1,200°C in a non-oxidizing atmosphere.

4. A heat-treated active carbon fiber for use in desulfurization as claimed in claim 3 wherein the starting active carbon fiber is a polyacrylonitrile-based or pitch-based starting active carbon fiber.

5. A heat-treated active carbon fiber for use in desulfurization as claimed in claim 3 or 4 wherein the non-oxidizing atmosphere is an atmosphere of nitrogen gas.

6. A desulfurization process which comprises bringing a gas containing SO_2, water and oxygen into contact with a heat-treated active carbon fiber for use in desulfurization as claimed in any one of claims 2 to 4.

7. A high-depth desulfurization process which comprises removing sulfur oxides by using a heat-treated active carbon fiber for use in desulfurization as claimed in claim 3 or 4,

on the downstream side of a desulfurization apparatus based on the lime-gypsum method.

8. A heat-treated active carbon fiber for use in denitration which has been obtained by heat-treating a starting active carbon fiber at a temperature of 600 to 1,000°C in a non-oxidizing atmosphere.

9. A heat-treated active carbon fiber for use in denitration as claimed in claim 8 wherein the starting active carbon fiber is a polyacrylonitrile-based or pitch-based starting active carbon fiber.

10. A heat-treated active carbon fiber for use in denitration as claimed in claim 8 or 9 wherein the non-oxidizing atmosphere is an atmosphere of nitrogen gas.

11. A high-degree denitration process which comprises removing nitrogen oxides by using a heat-treated active carbon fiber for use in denitration as claimed in claim 8, on the downstream side of a denitration treatment based on the selective catalytic reduction (SCR) method.

12. A process for removing nitrogen oxides by means of a heat-treated active carbon fiber for use in denitration which comprises providing a nitrogen oxide oxidation tower packed with a heat-treated active carbon fiber for use in denitration as claimed in claim 8, and passing exhaust gas through said oxidation tower to oxidize and remove nitrogen oxides (NO_x) present therein.

13. A process for removing nitrogen oxides by means of a heat-treated active carbon fiber for use in denitration which comprises providing a plurality of adsorption towers packed with a heat-treated active carbon fiber for use in denitration as claimed in claim 8, and passing exhaust gas successively through said adsorption towers in such a way that the exhaust gas is switched from one adsorption tower to another before a breakthrough of the nitrogen dioxide (NO_2) adsorbed on the heat-treated active carbon fiber for use in denitration within said one adsorption tower occurs, and the nitrogen oxides (NO_x) present in the exhaust gas are thereby oxidized, adsorbed and removed continuously.

14. A process for removing nitrogen oxides as claimed in any one of claims 11 to 13 wherein the continuous oxidation of nitrogen oxides within said adsorption tower is carried out by treating the exhaust gas at a temperature of as low as 150°C or below.

15. A process for removing nitrogen oxides as claimed in any one of claims 11 to 13 wherein the nitrogen oxides oxidized by the heat-treated active carbon fiber for use in denitration are continuously absorbed into an absorbing fluid.

16. An exhaust gas treating system wherein exhaust gas containing nitrogen oxides (NO_x) and sulfur oxides (SO_x) is treated with a heat-treated active carbon for use in the

treatment of exhaust gas as claimed in claim 2, so that the nitrogen oxides (NO_x) are recovered as nitric acid or a salt thereof and the sulfur oxides (SO_x) are recovered as sulfuric acid or a salt thereof.

17. An exhaust gas treating system as claimed in claim 16 wherein the temperature of the gas being treated is as low as 100°C or below.

18. An exhaust gas treating system as claimed in claim 16 or 17 wherein the relative humidity of the gas being treated is 80% or less when the nitrogen oxides (NO_x) are recovered as nitric acid or a salt thereof.

19. An exhaust gas treating system as claimed in claim 16 or 17 wherein the relative humidity of the gas being treated is 100% or greater when the sulfur oxides (SO_x) are recovered as sulfuric acid or a salt thereof.

Add A2

Add B3